

Docket No. AT9-98-266

CLAIMS:

What is claimed is:

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1. A computer implemented process for applying a set of rules, the process comprising:
- (a) placing a pre-method control before logic of a method and post-method control point after the logic of the method;
 - (b) associating a set rules with each control point based on a class of object in which the method resides, name of the method, and type of control point, whether the pre-method control point or the post-method control point;
 - (c) invoking the method, wherein encountering each control point during the execution of the method comprises:
 - (i) determining if the encountered control point is active;
 - (ii) on the basis of an active control point:
 - 1) selecting rules based on a set of rules associated with the active control point associated in step (b);
 - 2) running the selected rules;
 - 3) obtaining results from running the rules; and
 - 4) combining the results using a combining algorithm specified by the control point.

Docket No. AT9-98-266

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2. A computer implemented process for applying a set of rules comprising:
- (a) defining an object;
 - (b) defining at least one method in the object;
 - (c) defining a control point just before logic of at least one method; and
 - (d) associating a set of rules with the control point.
3. In the process of claim 2, the step of defining a first control point further comprises:
- (a1) decorating the object to dynamically insert a first control point such that the object acquires this new control point.
4. In the process of claim 2, the step of defining at least one control point further comprises:
- (c1) adding the at least one control point through the technique of generating required code in the compiler or with a preprocessor.
5. In the process of claim 2, the step of defining at least one control point further comprises:
- (c1) manually inserting the at least one control point and encoding the control point in the implementation of a hosting object.

Docket No. AT9-98-266

- 1 6. In the process of claim 2, the step of defining at
2 least one control point further comprises:
3 (c1) externalizing the at least one control point as
4 a class and instantiating it at the at least
5 one control point.
- 1 7. The process of claim 2 further comprises:
2 (e) defining a second control point just after the
3 logic of each method; and
4 (f) associating a second set of rules with the
5 second control point.
- 1 8. In the process of claim 7, wherein the rules in the
2 second set of rules are associated to the second
3 control point without considering the rules in the
4 first set of rules associated with the at least one
5 control point.
- 1 9. In the process of claim 7, wherein a set of rules is
2 defined as having N number of rules, N being at
3 least zero.
- 1 10. In the process of claim 2, the step of associating
2 at least one control point further comprises:
3 (c1) defining, with a control point, at least one of
4 a rule selecting algorithm and a rule-results
5 combination algorithm.

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Docket No. AT9-98-266

- 1 11. The process of claim 2, further comprises:
 2 (e) changing rules associated with the control
 3 point contained in the set of rules.

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 1 12. A computer implemented process for applying a set of
 2 rules, comprising:
 3 (a) invoking a method in an object;
 4 (b) encountering an active control point during the
 5 invocation of the method;
 6 (c) selecting rules associated with the method of
 7 the object at the control point;
 8 (d) invoking the rules; and
 9 (e) combining results from invoking the rules.

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 2 13. The process of claim 12, wherein the rules perform a
 3 variety of actions conditioned by the fact that
 4 rules may be associated with particular, regularly
 5 occurring points in the object model.

- 1 14. The process of claim 12, wherein the rules perform
 2 at least one function which varies over time.

- 1 15. A process of claim 12, wherein a control point
 2 occurs just before logic of the method begins, just
 3 after the logic of the method completes, or at both
 4 just before logic of the method begins and just
 5 after the logic of the method completes.

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Docket No. AT9-98-266

1 16. A computer implemented process for applying a set of
 2 rules comprising:
 3 (a) defining an object;
 4 (b) defining at least one method in the object;
 5 (c) defining at least one control point in the at
 6 least one method;
 7 (d) defining rules to the at least one control
 8 point on basis the object's class name, method,
 9 name, and position of the at least one control
 10 point in the method.

1 17. In the process of claim 16, further comprising the
 2 step of activating at least one control point having
 3 associated rules.

1 18. The process of claim 16 further comprising:
 2 (e) encountering a first control point;
 3 (e) running the rules associated with the first
 4 control point; and
 5 (f) affecting behavior of the object base on
 6 running the rules associated with the first
 7 control point.

1 19. In the process of claim 18, the step of affecting
 2 the behavior of the object further comprises:
 3 (i) associating different rules to a control
 4 point.

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Docket No. AT9-98-266

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1 20. In the process of claim 18, the step of affecting
2 the behavior of the object further comprises:

3 (i) defining another control point.

1 21. In the process of claim 18, the step of modifying
2 the object further comprises:

3 (i) associating rules to a second control
4 point.

1 22. In the process of claim 16, further comprising a
2 step of deactivating the at least one control point.

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1 23. A computer implemented process for applying a set of
2 rules, comprising

3 (a) defining an object;

4 (b) defining a method in the object;

5 (c) defining a first control point of the method;

6 (d) determining rules associated with the first
7 control point;

8 (e) defining a second control point of the method;
9 and

10 (f) determining rules associated with the second
11 control point.

1 24. A computer implemented process as in claim 23
2 further comprising:

3 (g) separately selecting, running and combining the
4 results of rules determined to be associated
5 with either control point.

Docket No. AT9-98-266

1 25. In the process of claim 23 wherein the first control
2 point is a pre-method trigger point.

1 26. In the process of claim 23 wherein the second
2 control point is a post-method trigger point.

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1 27. A computer implemented process for defining an
2 object comprising:
3 defining an object;
4 defining a method in the object by:
5 defining method logic;
6 placing the method logic in the method;
7 defining at least one control point; and
8 placing the at least one control point in the method
9 wherein the method logic is continuous.

1 28. A computer implemented process for defining an
2 object as in claim 27, wherein the step of placing
3 the at least one control point further comprises
4 placing the at least one control in the method
5 before the method logic.

1 29. A computer implemented process for defining an
2 object as in claim 27, wherein the step of placing
3 the at least one control point further comprises
4 placing the at least one control in the method after
5 the method logic.

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Sub a³ Docket No. AT9-98-266

1 30. A computer implemented process for defining an
2 object as in claim 27, wherein the at least one
3 control comprises two control points and further
4 comprising:
5 placing a first control in the method before the
6 method logic; and
7 placing a second control in the method after the
8 method logic.

1 31. A computer implemented process for defining an
2 object as in claim 27, further comprises:
3 flagging the at least one control point on the basis
4 of being active.

1 32. A computer implemented process for defining an
2 object as in claim 27, wherein the step of defining
3 the at least one control point further comprising:
4 defining a rule selection algorithm associated with
5 the at least one control point.

1 33. A computer implemented process for defining an
2 object as in claim 27, wherein the step of defining
3 the at least one control point further comprising:
4 defining a rule result combination algorithm
5 associated with the at least one control point.

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- 1 37. A computer implemented process for defining a rule
2 as in claim 36 wherein the occurrence of the control
3 point within the method being before method logic.

Docket No. AT9-98-266

1 38. A computer implemented process for defining a rule
2 as in claim 36 wherein the occurrence of control
3 point within the method being after method logic.

1 39. A computer implemented process for defining a rule
2 as in claim 36, further comprising:
3 associating the rule with another object class.

1 40. A computer implemented process for defining a rule
2 as in claim 36, further comprising:
3 associating the rule with another method within the
4 object class.

1 41. A computer implemented process for defining a rule
2 as in claim 36, further comprising:
3 associating the rule with another control point
4 within the method of the object class.

1 42. A computer implemented process for applying a set of
2 rules, comprising:
3 selecting an object class;
4 selecting a method within the object class;
5 invoking the method;
6 processing rules associated with the method
7 comprising:

8 encountering a control point associated with
9 the method;
10 determining if the control point is active; and
11 finding at least one rule associated with an
12 active control point.

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Docket No. AT9-98-266

1 43. A computer implemented process for applying a set of
2 rules as in claim 42, wherein the step of finding at
3 least one rule further comprises:

4 accessing a selecting algorithm associated with
5 the active control point; and
6 selecting at least one rule using the selecting
7 algorithm.

1 44. A computer implemented process for applying a set of
2 rules as in claim 42, where in the step of
3 processing rules further comprises:

4 running the at least one rule;
5 determining results from running the at least
6 one rule;
7 accessing a combining algorithm associated with
8 the control point; and
9 combining the results using the combining
10 algorithm.

1 45. A computer implemented process for applying a set of ✓
2 rules, comprising:

3 selecting an object class;

4 selecting a method within the object class;

5 invoking the method;

6 processing rules comprising:

7 encountering a control point;

8 accessing a selecting algorithm associated with
9 the control point; and

10 selecting at least one rule using the selecting
11 algorithm.

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Docket No. AT9-98-266

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- 1 46. A computer implemented process for applying a set of
2 rules, comprising:
3 selecting an object class;
4 selecting a method within the object class;
5 invoking the method;
6 processing rules comprising:
7 encountering a control point;
8 finding at least one rule associated with the
9 control point;
10 running the at least one rule;
11 determining results on the basis of running the
12 at least one rule;
13 accessing a combining algorithm associated with
14 the control point; and
15 combining the results using the combining
16 algorithm
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Docket No. AT9-98-266

- 1 47. A computer implemented process for applying a set of ✓
2 rules, comprising:
3 selecting an object class;
4 selecting a method within the object class;
5 invoking the method;
6 processing rules comprising:
7 encountering a first control point associated
8 with the method;
9 determining if the first control point is
10 active;
11 executing method logic of the method;
12 encountering a second control point associated
13 with the method;
14 determining if the second control point is
15 active;
16 finding a set of rules associated with one of
17 the first control point and the second control
18 point, wherein the set of rules contains not
19 less than zero rules.

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- 1 48. A computer implemented process for applying a set of
2 rules, comprising:
3 selecting an object class;
4 selecting a method within the object class;
5 invoking the method;
6 processing rules comprising:
7 encountering a control point associated with
8 the method;
9 finding at least one rule associated with the
10 control point prior to executing method logic
11 of the method;
12 running the at least one rule;
13 obtaining results on the basis of running the
14 at least one rule; and
15 controlling the method on the basis of the
16 results.
- 1 49. A computer implemented process for applying a set of
2 rules as in claim 48, wherein the step of
3 controlling the method comprises:
4 exiting the method.
- 1 50. A computer implemented process for applying a set of
2 rules as in claim 48, wherein the step of
3 controlling the method comprises:
4 executing method logic of the method.

Docket No. AT9-98-266

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1 51. A data processing system for defining an object ✓
2 comprising:
3 defining means for defining an object;
4 defining means for defining a method in the object
5 by:
6 defining means for defining method logic;
7 placing means for placing the method logic in the
8 method;
9 defining means for defining at least one control
10 point; and
11 placing means for placing the at least one control
12 point in the method wherein the method logic is
13 continuous.

1 52. A data processing system for defining an object as
2 in claim 51, wherein the step of placing the at
3 least one control point further comprises placing
4 means for placing the at least one control in the
5 method before the method logic.

1 53. A data processing system for defining an object as
2 in claim 51, wherein the step of placing the at
3 least one control point further comprises placing
4 means for placing the at least one control in the
5 method after the method logic.

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sub 24 Docket No. AT9-98-266

1 54. A data processing system for defining an object as
2 in claim 51, wherein the at least one control
3 comprises two control points and further comprising:
4 placing means for placing a first control in the
5 method before the method logic; and
6 placing means for placing a second control in the
7 method after the method logic.

1 55. A data processing system for defining an object as
2 in claim 51, further comprises:
3 flagging means for flagging the at least one control
4 point on the basis of being active.

1 56. A data processing system for defining an object as
2 in claim 51, wherein the step of defining the at
3 least one control point further comprising:
4 defining means for defining a rule selection
5 algorithm associated with the at least one control
6 point.

1 57. A data processing system for defining an object as
2 in claim 51, wherein the step of defining the at
3 least one control point further comprising:
4 defining means for defining a rule result
5 combination algorithm associated with the at least
6 one control point.

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- 1 58. A data processing system for defining an object as
2 in claim 51, wherein the step of defining the at
3 least one control point further comprises:
4 defining means for defining a rule selection
5 algorithm for the at least one control point; and
6 defining a rule result combination algorithm for the
7 at least one control point.
- 1 59. A data processing system for defining an object as
2 in claim 51, further comprising:
3 associating means for associating at least one rule
4 with the at least one control point.
- 1 60. ~~A data processing system for defining a rule~~ ✓
2 ~~comprising:~~
3 ~~creating means for creating the rule;~~
4 ~~associating means for associating the rule with an~~
5 ~~object class;~~
6 ~~associating means for associating the rule with a~~
7 ~~method within the object class; and~~
8 ~~associating means for associating the rule with an~~
9 ~~occurrence of a control point within the method.~~
- 1 61. A data processing system for defining a rule as in
2 claim 60 wherein the occurrence of the control point
3 within the method being before method logic.
- 1 62. A data processing system for defining a rule as in
2 claim 60 wherein the occurrence of control point
3 within the method being after method logic.

Docket No. AT9-98-266

1 63. A data processing system for defining a rule as in
2 claim 60, further comprising:
3 associating means for associating the rule with
4 another object class.

1 64. A data processing system for defining a rule as in
2 claim 60, further comprising:
3 associating means for associating the rule with
4 another method within the object class.

1 65. A data processing system for defining a rule as in
2 claim 60, further comprising:
3 associating means for associating the rule with
4 another control point within the method of the
5 object class.

1 66. A data processing system for applying a set of /
2 rules, comprising:
3 selecting means for selecting an object class;
4 selecting means for selecting a method within the
5 object class;
6 invoking means for invoking the method;
7 processing means for processing rules associated
8 with the method comprising:
9 encountering means for encountering a control
10 point associated with the method;
11 determining means for determining if the
12 control point is active; and
13 finding means for finding at least one rule
14 associated with an active control point.

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Docket No. AT9-98-266

1 67. A data processing system for applying a set of rules
2 as in claim 66, wherein the step of finding at least
3 one rule further comprises:

4 accessing means for accessing a selecting
5 algorithm associated with the active control
6 point; and
7 selecting means for selecting at least one rule
8 using the selecting algorithm.

1 68. A data processing system for applying a set of rules
2 as in claim 66, where in the step of processing
3 rules further comprises:

4 running means for running the at least one
5 rule;
6 determining means for determining results from
7 running the at least one rule;
8 accessing means for accessing a combining
9 algorithm associated with the control point;
10 and
11 combining means for combining the results using
12 the combining algorithm.

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Docket No. AT9-98-266

- 1 69. A data processing system for applying a set of /
2 rules, comprising:
3 selecting means for selecting an object class;
4 selecting means for selecting a method within the
5 object class;
6 invoking means for invoking the method;
7 processing means for processing rules comprising:
8 encountering means for encountering a control
9 point;
10 accessing means for accessing a selecting
11 algorithm associated with the control point;
12 and
13 selecting means for selecting at least one rule
14 using the selecting algorithm.

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Docket No. AT9-98-266

1 70. A data processing system for applying a set of
2 rules, comprising:
3 selecting means for selecting an object class;
4 selecting means for selecting a method within the
5 object class;
6 invoking means for invoking the method;
7 processing means for processing rules comprising:
8 encountering means for encountering a control
9 point;
10 finding means for finding at least one rule
11 associated with the control point;
12 running means for running the at least one
13 rule;
14 determining means for determining results on
15 the basis of running the at least one rule;
16 accessing a combining algorithm associated with
17 the control point; and
18 combining means for combining the results using
19 the combining algorithm.

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Docket No. AT9-98-266

1 71. A data processing system for applying a set of
2 rules, comprising:
3 selecting means for selecting means for selecting an
4 object class;
5 selecting means for selecting means for selecting a
6 method within the object class;
7 invoking means for invoking the method;
8 processing means for processing rules comprising:
9 encountering means for encountering a first
10 control point associated with the method;
11 determining means for determining if the first
12 control point is active;
13 executing means for executing method logic of
14 the method;
15 encountering means for encountering a second
16 control point associated with the method;
17 determining means for determining if the second
18 control point is active;
19 finding means for finding a set of rules
20 associated with one of the first control point
21 and the second control point, wherein the set
22 of rules contains not less than zero rules.

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Docket No. AT9-98-266

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1 72. A data processing system for applying a set of
2 rules, comprising:
3 selecting means for selecting an object class;
4 selecting means for selecting a method within the
5 object class;
6 invoking means for invoking the method;
7 processing means for processing rules comprising:
8 encountering means for encountering a control
9 point associated with the method;
10 finding means for finding at least one rule
11 associated with the control point prior to
12 executing method logic of the method;
13 running the at least one rule;
14 obtaining means for obtaining results on the
15 basis of running the at least one rule; and
16 controlling means for controlling the method on
17 the basis of the results.

1 73. A data processing system for applying a set of rules
2 as in claim 72, wherein the step of controlling the
3 method comprises:
4 exiting means for exiting the method.

1 74. A data processing system for applying a set of rules
2 as in claim 72, wherein the step of controlling the
3 method comprises:
4 executing means for executing method logic
5 of the method.

0920493-120398
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Docket No. AT9-98-266

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1 75. A computer program product embodied on a computer ✓
2 readable medium containing instructions for a
3 computer implemented process for defining an object,
4 the instruction comprising:
5 instructions for defining an object;
6 instructions for defining a method in the object by:
7 instructions for defining method logic;
8 instructions for placing the method logic in the
9 method;
10 instructions for defining at least one control
11 point; and
12 instructions for placing the at least one control
13 point in the method wherein the method logic is
14 continuous.

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1 76. A computer program product for defining an object as
2 in claim 75, wherein the step of placing the at
3 least one control point further comprises placing
4 the at least one control in the method before the
5 method logic.

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1 77. A computer program product for defining an object as
2 in claim 75, wherein the step of placing the at
3 least one control point further comprises placing
4 the at least one control in the method after the
5 method logic.

Docket No. AT9-98-266

1 78. A computer program product for defining an object as
2 in claim 75, wherein the at least one control
3 comprises two control points and further comprising:
4 instructions for placing a first control in the
5 method before the method logic; and
6 instructions for placing a second control in the
7 method after the method logic.

1 79. A computer program product for defining an object as
2 in claim 75, further comprises:
3 instructions for flagging the at least one control
4 point on the basis of being active.

1 80. A computer program product for defining an object as
2 in claim 75, wherein the step of defining the at
3 least one control point further comprising:
4 instructions for defining a rule selection algorithm
5 associated with the at least one control point.

1 81. A computer program product for defining an object as
2 in claim 75, wherein the step of defining the at
3 least one control point further comprising:
4 instructions for defining a rule result combination
5 algorithm associated with the at least one control
6 point.

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- 1 82. A computer program product for defining an object as
2 in claim 75, wherein the step of defining the at
3 least one control point further comprises:
4 instructions for defining a rule selection algorithm
5 for the at least one control point; and
6 instructions for defining a rule result combination
7 algorithm for the at least one control point.
- 1 83. A computer program product for defining an object as
2 in claim 75, further comprising:
3 instructions for associating at least one rule with
4 the at least one control point.
- 1 84. A computer program product embodied on a computer
2 readable medium containing instructions for a
3 computer implemented process for defining a rule,
4 the instruction comprising:
5 instructions for creating the rule;
6 instructions for associating the rule with an object
7 class;
8 instructions for associating the rule with a method
9 within the object class; and
10 instructions for associating the rule with an
11 occurrence of a control point within the method.
- 1 85. A computer program product for defining a rule as in
2 claim 84 wherein the occurrence of the control point
3 within the method being before method logic.

Docket No. AT9-98-266

1 86. A computer program product for defining a rule as in
2 claim 84 wherein the occurrence of control point
3 within the method being after method logic.

1 87. A computer program product for defining a rule as in
2 claim 84, further comprising:
3 instructions for associating the rule with another
4 object class.

1 88. A computer program product for defining a rule as in
2 claim 84, further comprising:
3 instructions for associating the rule with another
4 method within the object class.

1 89. A computer implemented process for defining a rule
2 as in claim 84, further comprising:
3 instructions for associating the rule with another
4 control point within the method of the object class.

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Docket No. AT9-98-266

- 1 90. A computer program product embodied on a computer /
2 readable medium containing instructions for a
3 computer implemented process for applying a set of
4 rules, the instruction comprising:
5 instructions for selecting an object class;
6 instructions for selecting a method within the
7 object class;
8 instructions for invoking the method;
9 instructions for processing rules associated with
10 the method comprising:
11 instructions for encountering a control point
12 associated with the method;
13 instructions for determining if the control
14 point is active; and
15 instructions for finding at least one rule
16 associated with an active control point.
- 1 91. A computer program product for applying a set of
2 rules as in claim 90, wherein the step of finding at
3 least one rule further comprises:
4 instructions for accessing a selecting
5 algorithm associated with the active control
6 point; and
7 instructions for selecting at least one rule
8 using the selecting algorithm.

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Docket No. AT9-98-266

1 92. A computer program product for applying a set of
2 rules as in claim 90, where in the step of
3 processing rules further comprises:
4 instructions for running the at least one rule;
5 instructions for determining results from
6 running the at least one rule;
7 instructions for accessing a combining
8 algorithm associated with the control point;
9 and
10 instructions for combining the results using
11 the combining algorithm.

1 93. A computer program product embodied on a computer ✓
2 readable medium containing instructions for a
3 computer implemented process for applying a set of
4 rules, the instruction comprising:
5 instructions for selecting an object class;
6 instructions for selecting a method within the
7 object class;
8 instructions for invoking the method;
9 instructions for processing rules comprising:
10 instructions for encountering a control point;
11 instructions for accessing a selecting
12 algorithm associated with the control point;
13 and
14 instructions for selecting at least one rule
15 using the selecting
16 algorithm.

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Docket No. AT9-98-266

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- 1 94. A computer program product embodied on a computer ✓
2 readable medium containing instructions for a
3 computer implemented process for applying a set of
4 rules, the instruction comprising:
5 instructions for selecting an object class;
6 instructions for selecting a method within the
7 object class;
8 instructions for invoking the method;
9 instructions for processing rules comprising:
10 instructions for encountering a control point;
11 instructions for finding at least one rule
12 associated with the control point;
13 instructions for running the at least one rule;
14 instructions for determining results on the
15 basis of running the at least one rule;
16 instructions for accessing a combining
17 algorithm associated with the control point;
18 and
19 instructions for combining the results using
20 the combining algorithm.
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Docket No. AT9-98-266

1 95. A computer program product embodied on a computer /
2 readable medium containing instructions for a
3 computer implemented process for applying a set of
4 rules, the instruction comprising:
5 instructions for selecting an object class;
6 instructions for selecting a method within the
7 object class;
8 instructions for invoking the method;
9 instructions for processing rules comprising:
10 instructions for encountering a first control
11 point associated with the method;
12 instructions for determining if the first
13 control point is active;
14 instructions for executing method logic of the
15 method;
16 instructions for encountering a second control
17 point associated with the method;
18 instructions for determining if the second
19 control point is active;
20 instructions for finding a set of rules
21 associated with one of the first control point
22 and the second control point, wherein the set
23 of rules contains not less than zero rules.

09204973-120398

Docket No. AT9-98-266

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B17

1 96. A computer program product embodied on a computer
2 readable medium containing instructions for a
3 computer implemented process for applying a set of
4 rules, the instruction comprising:
5 instructions for selecting an object class;
6 instructions for selecting a method within the
7 object class;
8 instructions for invoking the method;
9 processing rules comprising:
10 instructions for encountering a control point
11 associated with the method;
12 instructions for finding at least one rule
13 associated with the control point prior to
14 executing method logic of the method;
15 instructions for running the at least one rule;
16 instructions for obtaining results on the basis
17 of running the at least one rule; and
18 instructions for controlling the method on the
19 basis of the results.

1 97. A computer program product for applying a set of
2 rules as in claim 96, wherein the step of
3 controlling the method comprises:
4 instructions for exiting the method.

1 98. A computer program product for applying a set of
2 rules as in claim 96, wherein the step of
3 controlling the method comprises:
4 instructions for executing method logic of
5 the method.

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